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Manning et al.

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(54) **PRIORITY ARBITRATION FOR  
POINT-TO-POINT AND MULTIPPOINT  
TRANSMISSION**

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#### Related U.S. Application Data

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(51) **Int. Cl.<sup>7</sup>** ..... H04L 12/28

(52) **U.S. Cl.** ..... 370/414; 370/235

(58) **Field of Search** ..... 370/395.2, 395.31, 370/395.4, 414, 429, 432, 905, 353, 352, 389, 413, 428, 415, 416, 417, 418, 419, 468, 250, 252, 254, 351, 391, 392, 395.1, 399, 230, 235, 229, 442, 347, 461, 462; 340/825.5; 709/235

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(57) **ABSTRACT**

An Asynchronous Transfer Mode switch and method which facilitate priority arbitration of point-to-point and point-to-multipoint transmission are disclosed. To execute point-to-multipoint operation a bandwidth arbiter maintains a first list of connections and bit vectors indicating designated destination ports. The list maintained by the bandwidth arbiter is then compared to an unassigned output port bit vector to determine matches therebetween at which point-to-multipoint transmission may be made by utilizing instantaneously unused bandwidth within the switch. To execute point-to-point operation each input port maintains a list of connections associated with each output port, and those lists are used in conjunction with output port request information per input port in the bandwidth arbiter to match requests to the unassigned output port bit vector. The bandwidth arbiter may also assign priority to connections in the list.

29 Claims, 10 Drawing Sheets

